<110> Aventis Pharma S.A.

Rosier, Marie

Prades, Catherine

Lemoine, Cendrine

Naudin, Laurent

Denefle, Patrice

Duverger, Nicolas

Brewer, Bryan

Remaley, Alan

Fojo, Silvia

<120> Regulatory Nucleic Acid for the ABC1 Gene, Molecules Modifying Its Activity and Therapeutic Uses

<130> 3806.0505

<140> US 09/846,456
<141> 2001-05-02

<150> US 60/201,280
<151> 2000-05-02

<160> 28

<170> PatentIn version 3.0

<210> 1
<211> 3231
<212> DNA
<213> Homo sapiens

<400> 1

```
acagggcatg gtggcaggtg cctgtaatct cagttactcg ggaggtggag gttgcaatga    60
gcccagatcg caccattgca ctccagcctg ggcaacaaaa ggtgaaactc catctcaatt   120
aaaaaaaaaa gaatgatttt ggtggtcgac ttcaaatagg taggagaaga aggagagagg   180
agatggaggg tcagggagat ctaattactc tctaaaatca tgctaggaaa gataacacct   240
tttaataaca ctctctgctt ttataacatc attctgccaa ggagctcaaa ggtttcaaca   300
aagttcactt tcagaaaacc cctttgagga agacagaata tacatcttct ctccatttta   360
aagatgaaga aacaggccgg gcacaatggc taatgcctgt aatcccagca ctttgggagg   420
ctgaggccag aggatcgctt gagctccaga gtttgagacc agcctggata acatggcaaa   480
accctgtctc tacaaaaaaa atacaaaaat tagatgggtg tggtggcatg cacctgtggt   540
cccagctact tgggaggcta aggtgggagg atcgcttgag cccagggagt caagtctaca   600
ctgagccatg attggatcac tgcactccag cctgggtaga cagagcaaga ccctgtctca   660
aaaaaaagaa atgaaagaga aagaaagaaa gaggagagga gaggagatga ggggaggagg   720
gaggggggga ggaaggaagg aaggaaggaa ggaaaaaaag atgaaaaaag aaaaaaacaa   780
gatgaaacag aggcagaaag actttacgta aattgctcat catgtggttg tcaagtttga   840
ccccaaaacc caatttattg accaaggtta ttctttgact gaggcaaggg ggtccgctct   900
cctgggcctt gggctttaga aagctcatct ctggcctttc tgagatccat ccctttcttt   960
ttatttttct tgacacggag tcttgctctg tcactcaggc tggagtgcag tggcatgatc  1020
tcgactcact gtaacctctg cctcccgggt tcaagcgatt ctcctgcctc agcctcctga  1080
gataacaggc gcccgccacc acatctggct aatttttgta tttttagtaa agactgggtt  1140
tcatcatgtt ggccaggttg gtttcgaact cctgacctga ggtgagctgc ccaccttggc  1200
ctcccaaagt gctgggatta caggcatgag ccactgcgcc cagctcagat ccatcccttt  1260
ctaagggcaa acagtccatg gtgcaaaggg gccatccac ccagagttat gagtacctgg  1320
gactccagaa ttccttgcct ggtggcctcc acatgcactt ccagggcctg cttgggcctc  1380
ttctatgcgt ctgtcctgag tgttgataga accactgatg tgagtacctg ggcttgagcc  1440
gtggcctgga gatcctgttg actgtagcat ggaggggggct tgtgcagctg aatgtctgca  1500
tgcaggtggt gggagttctg gaatatgatg gagctggagg tgggaagaga agtaggcttg  1560
gggcagctct ctcatgccac ctcattctgg ccaaaactca ggtcaaactg tgaagagtct  1620
aaatgtgaat ctgcccttca aggtggctac aaaggtatct ttgtcaaggt aggagacctt  1680
gtggcctcca cgtgcacttc cagggcctgc ttgggcctct tctacgggtc tgtcctgagt  1740
cttctatgaa tccttcaggg cagattcata tttagactct tcacagtttg acctgagttt  1800
tggccagaat aaggtgacat ttagtttgtt ggcttgatgg atgacttaaa tatttagaca  1860
```

                                        2

```
tggtgtgtag gcctgcattc ctactcttgc cttttttttt gcccctccag tgttttgggt    1920

agttttgctc ccctacagcc aaaggcaaac agagaagttg gaggtctgga gtggctacat    1980

aattttacac gactgcaatt ctctggctgc acttcacaaa tgtatacaaa ctaaatacaa    2040

gtcctgtgtt tttatcacag ggaggctgat caatataatg aaattaaaag ggggctggtc    2100

catattgttc tgtgtttttg tttgtttgtt ttgtttgttt ctttttttgt ttttgtggcc    2160

tccttcctct caatttatga agagaagcag taagatgttc ctctcgggtc ctctgaggga    2220

cctggggagc tcaggctggg aatctccaag gcagtaggtc gcctatcaaa aatcaaagtc    2280

caggtttgtg gggggaaaac aaaagcagcc cattacccag aggactgtcc gccttcccct    2340

caccccagcc taggcctttg aaaggaaaca aaagacaaga caaaatgatt ggcgtcctga    2400

gggagattca gcctagagct ctctctcccc caatccctcc ctccggctga ggaaactaac    2460

aaaggaaaaa aaaattgcgg aaagcaggat ttagaggaag caaattccac tggtgccctt    2520

ggctgccggg aacgtggact agagagtctg cggcgcagcc ccgagcccag cgcttcccgc    2580

gcgtcttagg ccggcgggcc cgggcggggg aaggggacgc agaccgcgga ccctaagaca    2640

cctgctgtac cctccacccc caccccaccc cacccacctc cccccaactc cctagatgtg    2700

tcgtgggcgg ctgaacgtcg cccgtttaag gggcgggccc cggctccacg tgctttctgc    2760

tgagtgactg aactacataa acagaggccg ggaaggggc ggggaggagg gagagcacag    2820

gctttgaccg atagtaacct ctgcgctcgg tgcagccgaa tctataaaag gaactagtcc    2880

cggcaaaaac cccgtaattg cgagcgagag tgagtggggc cgggacccgc agagccgagc    2940

cgacccttct ctcccgggct gcggcagggc agggcgggga gctccgcgca ccaacagagc    3000

cggttctcag ggcgctttgc tccttgtttt ttccccggtt ctgttttctc cccttctccg    3060

gaaggcttgt caaggggtag gagaaagaga cgcaaacaca aaagtggaaa acaggtaaga    3120

ggctctccag tgacttactt gggcgttatt gttttgtttc gaggccaagg aggcttcggg    3180

aagtgctcgg tttcggggac tttgatccgg agccccacat ccccaccact t             3231
```

<210> 2

<211> 357

<212> DNA

<213> Homo sapiens

<400> 2
```
tggaggtctc agctgagagg gctggattag cagtcctcat tggtgtatgg ctttgcagca      60

ataactgatg gctgtttccc ctcctgcttt atctttcagt taatgaccag ccacgggcgt     120

ccctgctgtc agctctggcc gctgccttcc agggctcccg agccacacgc tgggcgtgct     180
```

3

```
ggctgaggga acatggcatg ttggcctcag ctgaggttgc tgctgtggaa gaacctcact      240

ttcagaagaa gacaaacagt aagcttgggt ttttcagcag cggggggttc tctcattttt      300

tctttgtggt tttgagttgg ggattggagg agggaggag ggaaggaagc tgtgttg         357


<210>  3

<211>  2893

<212>  DNA

<213>  Homo sapiens


<400>  3
acagggcatg gtggcaggtg cctgtaatct cagttactcg ggaggtggag gttgcaatga       60

gcccagatcg caccattgca ctccagcctg ggcaacaaaa ggtgaaactc catctcaatt      120

aaaaaaaaaa gaatgatttt ggtggtcgac ttcaaatagg taggagaaga aggagagagg      180

agatggaggg tcagggagat ctaattactc tctaaaatca tgctaggaaa gataacacct      240

tttaataaca ctctctgctt ttataacatc attctgccaa ggagctcaaa ggtttcaaca      300

aagttcactt tcagaaaacc cctttgagga agacagaata tacatcttct ctccatttta      360

aagatgaaga aacaggccgg gcacaatggc taatgcctgt aatcccagca ctttgggagg      420

ctgaggccag aggatcgctt gagctccaga gtttgagacc agcctggata acatggcaaa      480

accctgtctc tacaaaaaaa atacaaaaat tagatgggtg tggtggcatg cacctgtggt      540

cccagctact tgggaggcta aggtgggagg atcgcttgag cccagggagt caagtctaca      600

ctgagccatg attggatcac tgcactccag cctgggtaga cagagcaaga ccctgtctca      660

aaaaaaagaa atgaaagaga aagaagaaa gaggagagga gaggagatga ggggaggagg       720

gaggggggga ggaaggaagg aaggaaggaa ggaaaaaaag atgaaaaaag aaaaaaacaa      780

gatgaaacag aggcagaaag actttacgta aattgctcat catgtggttg tcaagtttga      840

ccccaaaacc caatttattg accaaggtta ttctttgact gaggcaaggg ggtccgctct      900

cctgggcctt gggctttaga aagctcatct ctggcctttc tgagatccat ccctttcttt      960

ttattttttct tgacacggag tcttgctctg tcactcaggc tggagtgcag tggcatgatc     1020

tcgactcact gtaacctctg cctcccgggt tcaagcgatt ctcctgcctc agcctcctga     1080

gataacaggc gcccgccacc acatctggct aattttgta ttttagtaa agactgggtt        1140

tcatcatgtt ggccaggttg gtttcgaact cctgacctga ggtgagctgc ccaccttggc      1200

ctcccaaagt gctgggatta caggcatgag ccactgcgcc cagctcagat ccatcccttt     1260

ctaagggcaa acagtccatg gtgcaaaggg gccatgccac ccagagttat gagtacctgg      1320

gactccagaa ttccttgcct ggtggcctcc acatgcactt ccagggcctg cttgggcctc     1380
```

4

```
ttctatgcgt ctgtcctgag tgttgataga accactgatg tgagtacctg ggcttgagcc    1440

gtggcctgga gatcctgttg actgtagcat ggaggggggct tgtgcagctg aatgtctgca    1500

tgcaggtggt gggagttctg gaatatgatg gagctggagg tgggaagaga agtaggcttg    1560

gggcagctct ctcatgccac ctcattctgg ccaaaactca ggtcaaactg tgaagagtct    1620

aaatgtgaat ctgcccttca aggtggctac aaaggtatct ttgtcaaggt aggagacctt    1680

gtggcctcca cgtgcacttc cagggcctgc ttgggcctct tctacgggtc tgtcctgagt    1740

cttctatgaa tccttcaggg cagattcata tttagactct tcacagtttg acctgagttt    1800

tggccagaat aaggtgacat ttagtttgtt ggcttgatgg atgacttaaa tatttagaca    1860

tggtgtgtag gcctgcattc ctactcttgc cttttttttt gcccctccag tgttttgggt    1920

agttttgctc ccctacagcc aaaggcaaac agagaagttg gaggtctgga gtggctacat    1980

aattttacac gactgcaatt ctctggctgc acttcacaaa tgtatacaaa ctaaatacaa    2040

gtcctgtgtt tttatcacag ggaggctgat caatataatg aaattaaaag ggggctggtc    2100

catattgttc tgtgtttttg tttgtttgtt ttgtttgttt ctttttttgt ttttgtggcc    2160

tccttcctct caatttatga agagaagcag taagatgttc ctctcgggtc ctctgaggga    2220

cctggggagc tcaggctggg aatctccaag gcagtaggtc gcctatcaaa aatcaaagtc    2280

caggtttgtg gggggaaaac aaaagcagcc cattacccag aggactgtcc gccttcccct    2340

caccccagcc taggcctttg aaaggaaaca aaagacaaga caaaatgatt ggcgtcctga    2400

gggagattca gcctagagct ctctctcccc caatccctcc ctccggctga ggaaactaac    2460

aaaggaaaaa aaaattgcgg aaagcaggat ttagaggaag caaattccac tggtgccctt    2520

ggctgccggg aacgtggact agagagtctg cggcgcagcc ccgagcccag cgcttcccgc    2580

gcgtcttagg ccggcggggcc cgggcggggg aaggggacgc agaccgcgga ccctaagaca    2640

cctgctgtac cctccacccc cacccccaccc cacccacctc cccccaactc cctagatgtg    2700

tcgtgggcgg ctgaacgtcg cccgtttaag gggcgggccc cggctccacg tgctttctgc    2760

tgagtgactg aactacataa acagaggccg ggaaggggggc ggggaggagg gagagcacag    2820

gctttgaccg atagtaacct ctgcgctcgg tgcagccgaa tctataaaag gaactagtcc    2880

cggcaaaaac ccc                                                       2893
```

<210> 4

<211> 221

<212> DNA

<213> Homo sapiens

<400> 4

5

```
gtaattgcga gcgagagtga gtggggccgg gacccgcaga gccgagccga cccttctctc     60

ccgggctgcg gcagggcagg gcggggagct ccgcgcacca acagagccgg ttctcagggc    120

gctttgctcc ttgttttttc cccggttctg ttttctcccc ttctccggaa ggcttgtcaa    180

ggggtaggag aaagagacgc aaacacaaaa gtggaaaaca g                        221
```

<210> 5
<211> 159
<212> DNA
<213> Homo sapiens


```
<400>  5
ttaatgacca gccacgggcg tccctgctgt cagctctggc cgctgccttc cagggctccc     60

gagccacacg ctgggcgtgc tggctgaggg aacatggcat gttggcctca gctgaggttg    120

ctgctgtgga agaacctcac tttcagaaga agacaaaca                           159
```

<210> 6
<211> 117
<212> DNA
<213> Homo sapiens


```
<400>  6
gtaagaggct ctccagtgac ttacttgggc gttattgttt tgtttcgagg ccaaggaggc     60

ttcgggaagt gctcggtttc ggggactttg atccggagcc ccacatcccc accactt       117
```

<210> 7
<211> 99
<212> DNA
<213> Homo sapiens


```
<400>  7
tggaggtctc agctgagagg gctggattag cagtcctcat tggtgtatgg ctttgcagca     60

ataactgatg gctgtttccc ctcctgcttt atctttcag                            99
```

<210> 8
<211> 99
<212> DNA

6
```

<213> Homo sapiens


<400> 8
gtaagcttgg gtttttcagc agcgggggggt tctctcattt tttctttgtg gttttgagtt    60

ggggattgga ggagggaggg agggaaggaa gctgtgttg    99


<210> 9

<211> 22

<212> PRT

<213> Homo sapiens


<400> 9

Met Ala Cys Trp Pro Gln Leu Arg Leu Leu Leu Trp Lys Asn Leu Thr
1               5                   10                  15

Phe Arg Arg Arg Gln Thr
                20

<210> 10

<211> 9741

<212> DNA

<213> Homo sapiens


<220>

<221> misc_feature

<222> (7009)..(7009)

<223> "n" is chosen from g, a, t and c


<400> 10
cttgtttttt ccccggttct gttttctccc cttctccgga aggcttgtca aggggtagga    60

gaaagagacg caaacacaaa agtggaaaac agttaatgac cagccacggc gtccctgctg   120

tgagctctgg ccgctgcctt ccagggctcc cgagccacac gctggggggtg ctggctgagg   180

gaacatggct tgttggcctc agctgaggtt gctgctgtgg aagaacctca ctttcagaag   240

aagacaaaca tgtcagctgc tgctggaagt ggcctggcct ctatttatct tcctgatcct   300

gatctctgtt cggctgagct acccacccta tgaacaacat gaatgccatt ttccaaataa   360

agccatgccc tctgcaggaa cacttccttg ggttcagggg attatctgta atgccaacaa   420

7

```
ccccctgtttc cgttacccga ctcctggggga ggctcccgga gttgttggaa actttaacaa    480

atccattgtg gctcgcctgt tctcagatgc tcggaggctt cttttataca gccagaaaga    540

caccagcatg aaggacatgc gcaaagttct gagaacatta cagcagatca agaaatccag    600

ctcaaacttg aagcttcaag atttcctggt ggacaatgaa accttctctg ggttcctgta    660

tcacaacctc tctctcccaa agtctactgt ggacaagatg ctgagggctg atgtcattct    720

ccacaaggta tttttgcaag gctaccagtt acatttgaca agtctgtgca atggatcaaa    780

atcagaagag atgattcaac ttggtgacca agaagtttct gagctttgtg gcctaccaag    840

ggagaaactg gctgcagcag agcgagtact tcgttccaac atggacatcc tgaagccaat    900

cctgagaaca ctaaactcta catctccctt cccgagcaag gagctggccg aagccacaaa    960

aacattgctg catagtcttg ggactctggc ccaggagctg ttcagcatga gaagctggag    1020

tgacatgcga caggaggtga tgtttctgac caatgtgaac agctccagct cctccaccca    1080

aatctaccag gctgtgtctc gtattgtctg cgggcatccc gagggagggg ggctgaagat    1140

caagtctctc aactggtatg aggacaacaa ctacaaagcc ctctttggag gcaatggcac    1200

tgaggaagat gctgaaacct tctatgacaa ctctacaact ccttactgca atgatttgat    1260

gaagaatttg gagtctagtc ctctttcccg cattatctgg aaagctctga gccgctgct    1320

cgttgggaag atcctgtata cacctgacac tccagccaca aggcaggtca tggctgaggt    1380

gaacaagacc ttccaggaac tggctgtgtt ccatgatctg gaaggcatgt gggaggaact    1440

cagcccccaag atctggacct tcatggagaa cagccaagaa atggaccttg tccggatgct    1500

gttggacagc agggacaatg accacttttg ggaacagcag ttggatggct tagattggac    1560

agcccaagac atcgtggcgt ttttggccaa gcacccagag gatgtccagt ccagtaatgg    1620

ttctgtgtac acctggagag aagctttcaa cgagactaac caggcaatcc ggaccatatc    1680

tcgcttcatg gagtgtgtca acctgaacaa gctagaaccc atagcaacag aagtctggct    1740

catcaacaag tccatggagc tgctggatga gaggaagttc tgggctggta ttgtgttcac    1800

tggaattact ccaggcagca ttgagctgcc ccatcatgtc aagtacaaga tccgaatgga    1860

cattgacaat gtggagagga caaataaaat caaggatggg tactgggacc ctggtcctcg    1920

agctgacccc tttgaggaca tgcggtacgt ctgggggggc ttcgcctact tgcaggatgt    1980

ggtggagcag gcaatcatca gggtgctgac gggcaccgag aagaaactg gtgtctatat    2040

gcaacagatg ccctatccct gttacgttga tgacatcttt ctgcgggtga tgagccggtc    2100

aatgcccctc ttcatgacgc tggcctggat ttactcagtg gctgtgatca tcaagggcat    2160

cgtgtatgag aaggaggcac ggctgaaaga gaccatgcgg atcatgggcc tggacaacag    2220

catcctctgg tttagctggt tcattagtag cctcattcct cttcttgtga gcgctggcct    2280

gctagtggtc atcctgaagt taggaaacct gctgccctac agtgatccca gcgtggtgtt    2340
```

8

```
tgtcttcctg tccgtgtttg ctgtggtgac aatcctgcag tgcttcctga ttagcacact    2400

cttctccaga gccaacctgg cagcagcctg tggggcatc atctacttca cgctgtacct    2460

gccctacgtc ctgtgtgtgg catggcagga ctacgtgggc ttcacactca agatcttcgc    2520

tagcctgctg tctcctgtgg cttttgggtt tggctgtgag tactttgccc ttttttgagga    2580

gcagggcatt ggagtgcagt gggacaacct gtttgagagt cctgtggagg aagatggctt    2640

caatctcacc acttcggtct ccatgatgct gtttgacacc ttcctctatg gggtgatgac    2700

ctggtacatt gaggctgtct ttccaggcca gtacggaatt cccaggccct ggtattttcc    2760

ttgcaccaag tcctactggt ttggcgagga aagtgatgag aagagccacc ctggttccaa    2820

ccagaagaga atatcagaaa tctgcatgga ggaggaaccc acccacttga agctgggcgt    2880

gtccattcag aacctggtaa aagtctaccg agatgggatg aaggtggctg tcgatggcct    2940

ggcactgaat ttttatgagg ccagatcac ctccttcctg ggccacaatg gagcggggaa    3000

gacgaccacc atgtcaatcc tgaccgggtt gttcccccccg acctcgggca ccgcctacat    3060

cctgggaaaa gacattcgct ctgagatgag caccatccgg cagaacctgg gggtctgtcc    3120

ccagcataac gtgctgtttg acatgctgac tgtcgaagaa cacatctggt tctatgcccg    3180

cttgaaaggg ctctctgaga agcacgtgaa ggcggagatg gagcagatgg ccctggatgt    3240

tggtttgcca tcaagcaagc tgaaaagcaa aacaagccag ctgtcaggtg gaatgcagag    3300

aaagctatct gtggccttgg cctttgtcgg gggatctaag gttgtcattc tggatgaacc    3360

cacagctggt gtggacccctt actcccgcag gggaatatgg gagctgctgc tgaaataccg    3420

acaaggccgc accattattc tctctacaca ccacatggat gaagcggacg tcctgggggga    3480

caggattgcc atcatctccc atgggaagct gtgctgtgtg ggctcctccc tgtttctgaa    3540

gaaccagctg ggaacaggct actacctgac cttggtcaag aaagatgtgg aatcctccct    3600

cagttcctgc agaaacagta gtagcactgt gtcatacctg aaaaaggagg acagtgtttc    3660

tcagagcagt tctgatgctg gcctgggcag cgaccatgag agtgacacgc tgaccatcga    3720

tgtctctgct atctccaacc tcatcaggaa gcatgtgtct gaagcccggc tggtggaaga    3780

cataggggcat gagctgacct atgtgctgcc atatgaagct gctaaggagg gagcctttgt    3840

ggaactcttt catgagattg atgaccggct ctcagacctg ggcatttcta gttatggcat    3900

ctcagagacg accctggaag aaatattcct caaggtggcc gaagagagtg gggtggatgc    3960

tgagacctca gatggtacct tgccagcaag acgaaacagg cgggccttcg gggacaagca    4020

gagctgtctt cgcccgttca ctgaagatga tgctgctgat ccaaatgatt ctgacataga    4080

cccagaatcc agagagacag acttgctcag tgggatggat ggcaaagggt cctaccaggt    4140

gaaaggctgg aaacttacac agcaacagtt tgtggccctt ttgtggaaga gactgctaat    4200

tgccagacgg agtcggaaag gatttttttgc tcagattgtc ttgccagctg tgtttgtctg    4260
```

9

```
cattgccctt gtgttcagcc tgatcgtgcc acccttttggc aagtacccca gcctggaact    4320

tcagccctgg atgtacaacg aacagtacac atttgtcagc aatgatgctc ctgaggacac    4380

gggaaccctg gaactcttaa acgccctcac caaagaccct ggcttcggga cccgctgtat    4440

ggaaggaaac ccaatcccag acacgccctg ccaggcaggg gaggaagagt ggaccactgc    4500

cccagttccc cagaccatca tggacctctt ccagaatggg aactggacaa tgcagaaccc    4560

ttcacctgca tgccagtgta gcagcgacaa aatcaagaag atgctgcctg tgtgtccccc    4620

aggggcaggg gggctgcctc ctccacaaag aaaacaaaac actgcagata tccttcagga    4680

cctgacagga agaaacattt cggattatct ggtgaagacg tatgtgcaga tcatagccaa    4740

aagcttaaag aacaagatct gggtgaatga gtttaggtat ggcggctttt ccctgggtgt    4800

cagtaatact caagcacttc ctccgagtca agaagttaat gatgccacca acaaatgaa    4860

gaaacaccta aagctggcca aggacagttc tgcagatcga tttctcaaca gcttgggaag    4920

atttatgaca ggactggaca ccagaaataa tgtcaaggtg tggttcaata acaagggctg    4980

gcatgcaatc agctctttcc tgaatgtcat caacaatgcc attctccggg ccaacctgca    5040

aaagggagag aaccctagcc attatggaat tactgctttc aatcatcccc tgaatctcac    5100

caagcagcag ctctcagagg tggctccgat gaccacatca gtggatgtcc ttgtgtccat    5160

ctgtgtcatc tttgcaatgt ccttcgtccc agccagcttt gtcgtattcc tgatccagga    5220

gcgggtcagc aaagcaaaac acctgcagtt catcagtgga gtgaagcctg tcatctactg    5280

gctctctaat tttgtctggg atatgtgcaa ttacgttgtc cctgccacac tggtcattat    5340

catcttcatc tgcttccagc agaagtccta tgtgtcctcc accaatctgc ctgtgctagc    5400

ccttctactt ttgctgtatg ggtggtcaat cacacctctc atgtacccag cctcctttgt    5460

gttcaagatc cccagcacag cctatgtggt gctcaccagc gtgaacctct tcattggcat    5520

taatggcagc gtggccacct ttgtgctgga gctgttcacc gacaataagc tgaataatat    5580

caatgatatc ctgaagtccg tgttcttgat cttcccacat ttttgcctgg gacgagggct    5640

catcgacatg gtgaaaaacc aggcaatggc tgatgccctg gaaaggtttg gggagaatcg    5700

ctttgtgtca ccattatctt gggacttggt gggacgaaac ctcttcgcca tggccgtgga    5760

aggggtggtg ttcttcctca ttactgttct gatccagtac agattcttca tcaggcccag    5820

acctgtaaat gcaaagctat ctcctctgaa tgatgaagat gaagatgtga ggcgggaaag    5880

acagagaatt cttgatggtg gaggccagaa tgacatctta gaaatcaagg agttgacgaa    5940

gatatataga aggaagcgga agcctgctgt tgacaggatt tgcgtgggca ttcctcctgg    6000

tgagtgcttt gggctcctgg gagttaatgg ggctggaaaa tcatcaactt tcaagatgtt    6060

aacaggagat accactgtta ccagaggaga tgctttcctt aacagaaata gtatcttatc    6120

aaacatccat gaagtacatc agaacatggg ctactgccct cagtttgatg ccatcacaga    6180
```

10

```
gctgttgact gggagagaac acgtggagtt ctttgccctt ttgagaggag tcccagagaa    6240

agaagttggc aaggttggtg agtgggcgat tcggaaactg ggcctcgtga agtatggaga    6300

aaaatatgct ggtaactata gtggaggcaa caaacgcaag ctctctacag ccatggcttt    6360

gatcggcggg cctcctgtgg tgtttctgga tgaacccacc acaggcatgg atcccaaagc    6420

ccggcggttc ttgtggaatt gtgccctaag tgttgtcaag gaggggagat cagtagtgct    6480

tacatctcat agtatggaag aatgtgaagc tctttgcact aggatggcaa tcatggtcaa    6540

tggaaggttc aggtgccttg gcagtgtcca gcatctaaaa aataggtttg gagatggtta    6600

tacaatagtt gtacgaatag cagggtccaa cccggacctg aagcctgtcc aggatttctt    6660

tggacttgca tttcctggaa gtgttccaaa agagaaacac cggaacatgc tacaatacca    6720

gcttccatct tcattatctt ctctggccag gatattcagc atcctctccc agagcaaaaa    6780

gcgactccac atagaagact actctgtttc tcagacaaca cttgaccaag tatttgtgaa    6840

ctttgccaag gaccaaagtg atgatgacca cttaaaagac ctctcattac acaaaaacca    6900

gacagtagtg gacgttgcag ttctcacatc ttttctacag gatgagaaag tgaaagaaag    6960

ctatgtatga agaatcctgt tcatacgggg tggctgaaag taaagaggna ctagactttc    7020

ctttgcacca tgtgaagtgt tgtggagaaa agagccagaa gttgatgtgg gaagaagtaa    7080

actggatact gtactgatac tattcaatgc aatgcaattc aatgcaatga aaacaaaatt    7140

ccattacagg ggcagtgcct ttgtagccta tgtcttgtat ggctctcaag tgaaagactt    7200

gaatttagtt ttttacctat acctatgtga aactctatta tggaacccaa tggacatatg    7260

ggtttgaact cacacttttt tttttttttt gttcctgtgt attctcattg gggttgcaac    7320

aataattcat caagtaatca tggccagcga ttattgatca aaatcaaaag gtaatgcaca    7380

tcctcattca ctaagccatg ccatgcccag gagactggtt tcccggtgac acatccattg    7440

ctggcaatga gtgtgccaga gttattagtg ccaagttttt cagaaagttt gaagcaccat    7500

ggtgtgtcat gctcactttt gtgaaagctg ctctgctcag agtctatcaa cattgaatat    7560

cagttgacag aatggtgcca tgcgtggcta acatcctgct ttgattccct ctgataagct    7620

gttctggtgg cagtaacatg caacaaaaat gtgggtgtct ctaggcacgg gaaacttggt    7680

tccattgtta tattgtccta tgcttcgagc catgggtcta cagggtcatc cttatgagac    7740

tcttaaatat acttagatcc tggtaagagg caaagaatca acagccaaac tgctggggct    7800

gcaagctgct gaagccaggg catgggatta aagagattgt gcgttcaaac ctagggaagc    7860

ctgtgcccat ttgtcctgac tgtctgctaa catggtacac tgcatctcaa gatgtttatc    7920

tgacacaagt gtattatttc tggctttttg aattaatcta gaaaatgaaa agatggagtt    7980

gtattttgac aaaaatgttt gtactttta atgttatttg gaattttaag ttctatcagt    8040

gacttctgaa tccttagaat ggcctctttg tagaaccctg tggtatagag gagtatggcc    8100
```

11

```
actgccccac tatttttatt ttcttatgta agtttgcata tcagtcatga ctagtgccta    8160

gaaagcaatg tgatggtcag gatctcatga cattatattt gagtttcttt cagatcattt    8220

aggatactct taatctcact tcatcaatca aatatttttt gagtgtatgc tgtagctgaa    8280

agagtatgta cgtacgtata agactagaga gatattaagt ctcagtacac ttcctgtgcc    8340

atgttattca gctcactggt ttacaaatat aggttgtctt gtggttgtag gagcccactg    8400

taacaatact gggcagcctt tttttttttt tttaattgca acaatgcaaa agccaagaaa    8460

gtataagggt cacaagtcta aacaatgaat tcttcaacag ggaaaacagc tagcttgaaa    8520

acttgctgaa aaacacaact tgtgtttatg gcatttagta ccttcaaata attggctttg    8580

cagatattgg ataccccatt aaatctgaca gtctcaaatt tttcatctct tcaatcacta    8640

gtcaagaaaa atataaaaac aacaaatact tccatatgga gcatttttca gagttttcta    8700

acccagtctt attttctag tcagtaaaca tttgtaaaaa tactgtttca ctaatactta    8760

ctgttaactg tcttgagaga aaagaaaaat atgagagaac tattgtttgg ggaagttcaa    8820

gtgatctttc aatatcatta ctaacttctt ccactttttc caaaatttga atattaacgc    8880

taaaggtgta agacttcaga tttcaaatta atctttctat attttttaaa tttacagaat    8940

attatataac ccactgctga aaaagaaaaa aatgattgtt ttagaagtta aagtcaatat    9000

tgattttaaa tataagtaat gaaggcatat ttccaataac tagtgatatg gcatcgttgc    9060

attttacagt atcttcaaaa atacagaatt tatagaataa tttctcctca tttaatattt    9120

ttcaaaatca aagttatggt ttcctcattt tactaaaatc gtattctaat tcttcattat    9180

agtaaatcta tgagcaactc cttacttcgg ttcctctgat ttcaaggcca tattttaaaa    9240

aatcaaaagg cactgtgaac tattttgaag aaaacacaac attttaatac agattgaaag    9300

gacctcttct gaagctagaa acaatctata gttatacatc ttcattaata ctgtgttacc    9360

ttttaaaata gtaatttttt acattttcct gtgtaaacct aattgtggta gaaatttta    9420

ccaactctat actcaatcaa gcaaaatttc tgtatattcc ctgtggaatg tacctatgtg    9480

agtttcagaa attctcaaaa tacgtgttca aaaatttctg cttttgcatc tttgggacac    9540

ctcagaaaac ttattaacaa ctgtgaatat gagaaataca gaagaaaata ataagccctc    9600

tatacataaa tgcccagcac aattcattgt taaaaaacaa ccaaacctca cactactgta    9660

tttcattatc tgtactgaaa gcaaatgctt tgtgactatt aaatgttgca catcattcat    9720

tcaaaaaaaa aaaaaaaaaa a                                              9741
```

<210> 11

<211> 2261

<212> PRT

<213> Homo sapiens

<400> 11

```
Met Ala Cys Trp Pro Gln Leu Arg Leu Leu Leu Trp Lys Asn Leu Thr
1               5                   10                  15

Phe Arg Arg Arg Gln Thr Cys Gln Leu Leu Leu Glu Val Ala Trp Pro
            20                  25                  30

Leu Phe Ile Phe Leu Ile Leu Ile Ser Val Arg Leu Ser Tyr Pro Pro
        35                  40                  45

Tyr Glu Gln His Glu Cys His Phe Pro Asn Lys Ala Met Pro Ser Ala
    50                  55                  60

Gly Thr Leu Pro Trp Val Gln Gly Ile Ile Cys Asn Ala Asn Asn Pro
65                  70                  75                  80

Cys Phe Arg Tyr Pro Thr Pro Gly Glu Ala Pro Gly Val Val Gly Asn
                85                  90                  95

Phe Asn Lys Ser Ile Val Ala Arg Leu Phe Ser Asp Ala Arg Arg Leu
        100                 105                 110

Leu Leu Tyr Ser Gln Lys Asp Thr Ser Met Lys Asp Met Arg Lys Val
        115                 120                 125

Leu Arg Thr Leu Gln Gln Ile Lys Lys Ser Ser Ser Asn Leu Lys Leu
    130                 135                 140

Gln Asp Phe Leu Val Asp Asn Glu Thr Phe Ser Gly Phe Leu Tyr His
145                 150                 155                 160

Asn Leu Ser Leu Pro Lys Ser Thr Val Asp Lys Met Leu Arg Ala Asp
                165                 170                 175

Val Ile Leu His Lys Val Phe Leu Gln Gly Tyr Gln Leu His Leu Thr
            180                 185                 190

Ser Leu Cys Asn Gly Ser Lys Ser Glu Glu Met Ile Gln Leu Gly Asp
        195                 200                 205

Gln Glu Val Ser Glu Leu Cys Gly Leu Pro Arg Glu Lys Leu Ala Ala
    210                 215                 220

Ala Glu Arg Val Leu Arg Ser Asn Met Asp Ile Leu Lys Pro Ile Leu
225                 230                 235                 240

Arg Thr Leu Asn Ser Thr Ser Pro Phe Pro Ser Lys Glu Leu Ala Glu
                245                 250                 255

Ala Thr Lys Thr Leu Leu His Ser Leu Gly Thr Leu Ala Gln Glu Leu
        260                 265                 270

Phe Ser Met Arg Ser Trp Ser Asp Met Arg Gln Glu Val Met Phe Leu
        275                 280                 285

Thr Asn Val Asn Ser Ser Ser Ser Ser Thr Gln Ile Tyr Gln Ala Val
    290                 295                 300

Ser Arg Ile Val Cys Gly His Pro Glu Gly Gly Gly Leu Lys Ile Lys
305                 310                 315                 320
```

13

Ser Leu Asn Trp Tyr Glu Asp Asn Asn Tyr Lys Ala Leu Phe Gly Gly
                325   330   335

Asn Gly Thr Glu Glu Asp Ala Glu Thr Phe Tyr Asp Asn Ser Thr Thr
            340   345   350

Pro Tyr Cys Asn Asp Leu Met Lys Asn Leu Glu Ser Ser Pro Leu Ser
        355   360   365

Arg Ile Ile Trp Lys Ala Leu Lys Pro Leu Leu Val Gly Lys Ile Leu
    370   375   380

Tyr Thr Pro Asp Thr Pro Ala Thr Arg Gln Val Met Ala Glu Val Asn
385   390   395   400

Lys Thr Phe Gln Glu Leu Ala Val Phe His Asp Leu Glu Gly Met Trp
            405   410   415

Glu Glu Leu Ser Pro Lys Ile Trp Thr Phe Met Glu Asn Ser Gln Glu
            420   425   430

Met Asp Leu Val Arg Met Leu Leu Asp Ser Arg Asp Asn Asp His Phe
        435   440   445

Trp Glu Gln Gln Leu Asp Gly Leu Asp Trp Thr Ala Gln Asp Ile Val
    450   455   460

Ala Phe Leu Ala Lys His Pro Glu Asp Val Gln Ser Ser Asn Gly Ser
465   470   475   480

Val Tyr Thr Trp Arg Glu Ala Phe Asn Glu Thr Asn Gln Ala Ile Arg
            485   490   495

Thr Ile Ser Arg Phe Met Glu Cys Val Asn Leu Asn Lys Leu Glu Pro
        500   505   510

Ile Ala Thr Glu Val Trp Leu Ile Asn Lys Ser Met Glu Leu Leu Asp
        515   520   525

Glu Arg Lys Phe Trp Ala Gly Ile Val Phe Thr Gly Ile Thr Pro Gly
    530   535   540

Ser Ile Glu Leu Pro His His Val Lys Tyr Lys Ile Arg Met Asp Ile
545   550   555   560

Asp Asn Val Glu Arg Thr Asn Lys Ile Lys Asp Gly Tyr Trp Asp Pro
            565   570   575

Gly Pro Arg Ala Asp Pro Phe Glu Asp Met Arg Tyr Val Trp Gly Gly
        580   585   590

Phe Ala Tyr Leu Gln Asp Val Val Glu Gln Ala Ile Ile Arg Val Leu
        595   600   605

Thr Gly Thr Glu Lys Lys Thr Gly Val Tyr Met Gln Gln Met Pro Tyr
    610   615   620

Pro Cys Tyr Val Asp Asp Ile Phe Leu Arg Val Met Ser Arg Ser Met
625   630   635   640

Pro Leu Phe Met Thr Leu Ala Trp Ile Tyr Ser Val Ala Val Ile Ile
            645   650   655

14

Lys Gly Ile Val Tyr Glu Lys Glu Ala Arg Leu Lys Glu Thr Met Arg
          660   665   670

Ile Met Gly Leu Asp Asn Ser Ile Leu Trp Phe Ser Trp Phe Ile Ser
          675   680   685

Ser Leu Ile Pro Leu Leu Val Ser Ala Gly Leu Leu Val Val Ile Leu
          690   695   700

Lys Leu Gly Asn Leu Leu Pro Tyr Ser Asp Pro Ser Val Val Phe Val
705   710   715   720

Phe Leu Ser Val Phe Ala Val Val Thr Ile Leu Gln Cys Phe Leu Ile
                    725   730   735

Ser Thr Leu Phe Ser Arg Ala Asn Leu Ala Ala Ala Cys Gly Gly Ile
                    740   745   750

Ile Tyr Phe Thr Leu Tyr Leu Pro Tyr Val Leu Cys Val Ala Trp Gln
          755   760   765

Asp Tyr Val Gly Phe Thr Leu Lys Ile Phe Ala Ser Leu Leu Ser Pro
          770   775   780

Val Ala Phe Gly Phe Gly Cys Glu Tyr Phe Ala Leu Phe Glu Glu Gln
785   790   795   800

Gly Ile Gly Val Gln Trp Asp Asn Leu Phe Glu Ser Pro Val Glu Glu
                    805   810   815

Asp Gly Phe Asn Leu Thr Thr Ser Val Ser Met Met Leu Phe Asp Thr
                    820   825   830

Phe Leu Tyr Gly Val Met Thr Trp Tyr Ile Glu Ala Val Phe Pro Gly
                    835   840   845

Gln Tyr Gly Ile Pro Arg Pro Trp Tyr Phe Pro Cys Thr Lys Ser Tyr
          850   855   860

Trp Phe Gly Glu Glu Ser Asp Glu Lys Ser His Pro Gly Ser Asn Gln
865   870   875   880

Lys Arg Ile Ser Glu Ile Cys Met Glu Glu Glu Pro Thr His Leu Lys
                    885   890   895

Leu Gly Val Ser Ile Gln Asn Leu Val Lys Val Tyr Arg Asp Gly Met
                    900   905   910

Lys Val Ala Val Asp Gly Leu Ala Leu Asn Phe Tyr Glu Gly Gln Ile
          915   920   925

Thr Ser Phe Leu Gly His Asn Gly Ala Gly Lys Thr Thr Thr Met Ser
          930   935   940

Ile Leu Thr Gly Leu Phe Pro Pro Thr Ser Gly Thr Ala Tyr Ile Leu
945   950   955   960

Gly Lys Asp Ile Arg Ser Glu Met Ser Thr Ile Arg Gln Asn Leu Gly
                    965   970   975

Val Cys Pro Gln His Asn Val Leu Phe Asp Met Leu Thr Val Glu Glu
                    980   985   990

His Ile Trp Phe Tyr Ala Arg Leu Lys Gly Leu Ser Glu Lys His Val

```
          995              1000             1005

Lys Ala  Glu Met Glu Gln Met  Ala Leu Asp Val Gly  Leu Pro Ser
    1010                 1015                 1020

Ser Lys  Leu Lys Ser Lys Thr  Ser Gln Leu Ser Gly  Gly Met Gln
    1025                 1030                 1035

Arg Lys  Leu Ser Val Ala Leu  Ala Phe Val Gly Gly  Ser Lys Val
    1040                 1045                 1050

Val Ile  Leu Asp Glu Pro Thr  Ala Gly Val Asp Pro  Tyr Ser Arg
    1055                 1060                 1065

Arg Gly  Ile Trp Glu Leu Leu  Leu Lys Tyr Arg Gln  Gly Arg Thr
    1070                 1075                 1080

Ile Ile  Leu Ser Thr His His  Met Asp Glu Ala Asp  Val Leu Gly
    1085                 1090                 1095

Asp Arg  Ile Ala Ile Ile Ser  His Gly Lys Leu Cys  Cys Val Gly
    1100                 1105                 1110

Ser Ser  Leu Phe Leu Lys Asn  Gln Leu Gly Thr Gly  Tyr Tyr Leu
    1115                 1120                 1125

Thr Leu  Val Lys Lys Asp Val  Glu Ser Ser Leu Ser  Ser Cys Arg
    1130                 1135                 1140

Asn Ser  Ser Ser Thr Val Ser  Tyr Leu Lys Lys Glu  Asp Ser Val
    1145                 1150                 1155

Ser Gln  Ser Ser Ser Asp Ala  Gly Leu Gly Ser Asp  His Glu Ser
    1160                 1165                 1170

Asp Thr  Leu Thr Ile Asp Val  Ser Ala Ile Ser Asn  Leu Ile Arg
    1175                 1180                 1185

Lys His  Val Ser Glu Ala Arg  Leu Val Glu Asp Ile  Gly His Glu
    1190                 1195                 1200

Leu Thr  Tyr Val Leu Pro Tyr  Glu Ala Ala Lys Glu  Gly Ala Phe
    1205                 1210                 1215

Val Glu  Leu Phe His Glu Ile  Asp Asp Arg Leu Ser  Asp Leu Gly
    1220                 1225                 1230

Ile Ser  Ser Tyr Gly Ile Ser  Glu Thr Thr Leu Glu  Glu Ile Phe
    1235                 1240                 1245

Leu Lys  Val Ala Glu Glu Ser  Gly Val Asp Ala Glu  Thr Ser Asp
    1250                 1255                 1260

Gly Thr  Leu Pro Ala Arg Arg  Asn Arg Arg Ala Phe  Gly Asp Lys
    1265                 1270                 1275

Gln Ser  Cys Leu Arg Pro Phe  Thr Glu Asp Asp Ala  Ala Asp Pro
    1280                 1285                 1290

Asn Asp  Ser Asp Ile Asp Pro  Glu Ser Arg Glu Thr  Asp Leu Leu
    1295                 1300                 1305

Ser Gly  Met Asp Gly Lys Gly  Ser Tyr Gln Val Lys  Gly Trp Lys
    1310                 1315                 1320
                          16
```

```
Leu Thr  Gln Gln Gln Phe Val  Ala Leu Leu Trp Lys  Arg Leu Leu
    1325             1330             1335

Ile Ala  Arg Arg Ser Arg Lys  Gly Phe Phe Ala Gln  Ile Val Leu
    1340             1345             1350

Pro Ala  Val Phe Val Cys Ile  Ala Leu Val Phe Ser  Leu Ile Val
    1355             1360             1365

Pro Pro  Phe Gly Lys Tyr Pro  Ser Leu Glu Leu Gln  Pro Trp Met
    1370             1375             1380

Tyr Asn  Glu Gln Tyr Thr Phe  Val Ser Asn Asp Ala  Pro Glu Asp
    1385             1390             1395

Thr Gly  Thr Leu Glu Leu Leu  Asn Ala Leu Thr Lys  Asp Pro Gly
    1400             1405             1410

Phe Gly  Thr Arg Cys Met Glu  Gly Asn Pro Ile Pro  Asp Thr Pro
    1415             1420             1425

Cys Gln  Ala Gly Glu Glu Glu  Trp Thr Thr Ala Pro  Val Pro Gln
    1430             1435             1440

Thr Ile  Met Asp Leu Phe Gln  Asn Gly Asn Trp Thr  Met Gln Asn
    1445             1450             1455

Pro Ser  Pro Ala Cys Gln Cys  Ser Ser Asp Lys Ile  Lys Lys Met
    1460             1465             1470

Leu Pro  Val Cys Pro Pro Gly  Ala Gly Gly Leu Pro  Pro Pro Gln
    1475             1480             1485

Arg Lys  Gln Asn Thr Ala Asp  Ile Leu Gln Asp Leu  Thr Gly Arg
    1490             1495             1500

Asn Ile  Ser Asp Tyr Leu Val  Lys Thr Tyr Val Gln  Ile Ile Ala
    1505             1510             1515

Lys Ser  Leu Lys Asn Lys Ile  Trp Val Asn Glu Phe  Arg Tyr Gly
    1520             1525             1530

Gly Phe  Ser Leu Gly Val Ser  Asn Thr Gln Ala Leu  Pro Pro Ser
    1535             1540             1545

Gln Glu  Val Asn Asp Ala Thr  Lys Gln Met Lys Lys  His Leu Lys
    1550             1555             1560

Leu Ala  Lys Asp Ser Ser Ala  Asp Arg Phe Leu Asn  Ser Leu Gly
    1565             1570             1575

Arg Phe  Met Thr Gly Leu Asp  Thr Arg Asn Asn Val  Lys Val Trp
    1580             1585             1590

Phe Asn  Asn Lys Gly Trp His  Ala Ile Ser Ser Phe  Leu Asn Val
    1595             1600             1605

Ile Asn  Asn Ala Ile Leu Arg  Ala Asn Leu Gln Lys  Gly Glu Asn
    1610             1615             1620

Pro Ser  His Tyr Gly Ile Thr  Ala Phe Asn His Pro  Leu Asn Leu
    1625             1630             1635
```

```
Thr Lys Gln Gln Leu Ser Glu   Val Ala Pro Met Thr   Thr Ser Val
    1640                1645                  1650

Asp Val Leu Val Ser Ile Cys   Val Ile Phe Ala Met   Ser Phe Val
    1655                1660                  1665

Pro Ala Ser Phe Val Val Phe   Leu Ile Gln Glu Arg   Val Ser Lys
    1670                1675                  1680

Ala Lys His Leu Gln Phe Ile   Ser Gly Val Lys Pro   Val Ile Tyr
    1685                1690                  1695

Trp Leu Ser Asn Phe Val Trp   Asp Met Cys Asn Tyr   Val Val Pro
    1700                1705                  1710

Ala Thr Leu Val Ile Ile Ile   Phe Ile Cys Phe Gln   Gln Lys Ser
    1715                1720                  1725

Tyr Val Ser Ser Thr Asn Leu   Pro Val Leu Ala Leu   Leu Leu Leu
    1730                1735                  1740

Leu Tyr Gly Trp Ser Ile Thr   Pro Leu Met Tyr Pro   Ala Ser Phe
    1745                1750                  1755

Val Phe Lys Ile Pro Ser Thr   Ala Tyr Val Val Leu   Thr Ser Val
    1760                1765                  1770

Asn Leu Phe Ile Gly Ile Asn   Gly Ser Val Ala Thr   Phe Val Leu
    1775                1780                  1785

Glu Leu Phe Thr Asp Asn Lys   Leu Asn Asn Ile Asn   Asp Ile Leu
    1790                1795                  1800

Lys Ser Val Phe Leu Ile Phe   Pro His Phe Cys Leu   Gly Arg Gly
    1805                1810                  1815

Leu Ile Asp Met Val Lys Asn   Gln Ala Met Ala Asp   Ala Leu Glu
    1820                1825                  1830

Arg Phe Gly Glu Asn Arg Phe   Val Ser Pro Leu Ser   Trp Asp Leu
    1835                1840                  1845

Val Gly Arg Asn Leu Phe Ala   Met Ala Val Glu Gly   Val Val Phe
    1850                1855                  1860

Phe Leu Ile Thr Val Leu Ile   Gln Tyr Arg Phe Phe   Ile Arg Pro
    1865                1870                  1875

Arg Pro Val Asn Ala Lys Leu   Ser Pro Leu Asn Asp   Glu Asp Glu
    1880                1885                  1890

Asp Val Arg Arg Glu Arg Gln   Arg Ile Leu Asp Gly   Gly Gly Gln
    1895                1900                  1905

Asn Asp Ile Leu Glu Ile Lys   Glu Leu Thr Lys Ile   Tyr Arg Arg
    1910                1915                  1920

Lys Arg Lys Pro Ala Val Asp   Arg Ile Cys Val Gly   Ile Pro Pro
    1925                1930                  1935

Gly Glu Cys Phe Gly Leu Leu   Gly Val Asn Gly Ala   Gly Lys Ser
    1940                1945                  1950

Ser Thr Phe Lys Met Leu Thr   Gly Asp Thr Thr Val   Thr Arg Gly
                                 18
```

```
         1955                1960                1965
Asp Ala  Phe Leu Asn Arg Asn  Ser Ile Leu Ser Asn  Ile His Glu
    1970                1975                1980
Val His  Gln Asn Met Gly Tyr  Cys Pro Gln Phe Asp  Ala Ile Thr
    1985                1990                1995
Glu Leu  Leu Thr Gly Arg Glu  His Val Glu Phe Phe  Ala Leu Leu
    2000                2005                2010
Arg Gly  Val Pro Glu Lys Glu  Val Gly Lys Val Gly  Glu Trp Ala
    2015                2020                2025
Ile Arg  Lys Leu Gly Leu Val  Lys Tyr Gly Glu Lys  Tyr Ala Gly
    2030                2035                2040
Asn Tyr  Ser Gly Gly Asn Lys  Arg Lys Leu Ser Thr  Ala Met Ala
    2045                2050                2055
Leu Ile  Gly Gly Pro Pro Val  Val Phe Leu Asp Glu  Pro Thr Thr
    2060                2065                2070
Gly Met  Asp Pro Lys Ala Arg  Arg Phe Leu Trp Asn  Cys Ala Leu
    2075                2080                2085
Ser Val  Val Lys Glu Gly Arg  Ser Val Val Leu Thr  Ser His Ser
    2090                2095                2100
Met Glu  Glu Cys Glu Ala Leu  Cys Thr Arg Met Ala  Ile Met Val
    2105                2110                2115
Asn Gly  Arg Phe Arg Cys Leu  Gly Ser Val Gln His  Leu Lys Asn
    2120                2125                2130
Arg Phe  Gly Asp Gly Tyr Thr  Ile Val Val Arg Ile  Ala Gly Ser
    2135                2140                2145
Asn Pro  Asp Leu Lys Pro Val  Gln Asp Phe Phe Gly  Leu Ala Phe
    2150                2155                2160
Pro Gly  Ser Val Pro Lys Glu  Lys His Arg Asn Met  Leu Gln Tyr
    2165                2170                2175
Gln Leu  Pro Ser Ser Leu Ser  Ser Leu Ala Arg Ile  Phe Ser Ile
    2180                2185                2190
Leu Ser  Gln Ser Lys Lys Arg  Leu His Ile Glu Asp  Tyr Ser Val
    2195                2200                2205
Ser Gln  Thr Thr Leu Asp Gln  Val Phe Val Asn Phe  Ala Lys Asp
    2210                2215                2220
Gln Ser  Asp Asp Asp His Leu  Lys Asp Leu Ser Leu  His Lys Asn
    2225                2230                2235
Gln Thr  Val Val Asp Val Ala  Val Leu Thr Ser Phe  Leu Gln Asp
    2240                2245                2250
Glu Lys  Val Lys Glu Ser Tyr  Val
    2255                2260
```

<210>   12

19

<211> 26

<212> DNA

<213> Homo sapiens

<400> 12
ttgccgtcga ctgttttggg tagttt   26

<210> 13

<211> 25

<212> DNA

<213> Homo sapiens

<400> 13
gccctgtcga ccggctctgt tggtg   25

<210> 14

<211> 29

<212> DNA

<213> Homo sapiens

<400> 14
tcgcccgttt aggcttgggc gcccggctc   29

<210> 15

<211> 29

<212> DNA

<213> Homo sapiens

<400> 15
cagaggccgg gaggcttggg cgggaggga   29

<210> 16

<211> 28

<212> DNA

<213> Homo sapiens

<400> 16
cgtgctttct gctgaggatg cgaactac   28

<210> 17
<211> 26
<212> DNA
<213> Homo sapiens

<400> 17
cggctcctca cggctttctg ctgagt   26

<210> 18
<211> 24
<212> DNA
<213> Homo sapiens

<400> 18
gcctcctttc tgctgagtga ctga   24

<210> 19
<211> 34
<212> DNA
<213> Homo sapiens

<400> 19
ctttgtgtga tagtaaacta ctgcgctcgg tgca   34

<210> 20
<211> 20
<212> DNA
<213> Homo sapiens

<400> 20
actcccaagc tttgtcgtgg   20

<210> 21
<211> 13

<212> DNA

<213> adeno-associated virus 2

<220>

<221> misc_feature

<222> (6)..(8)

<223> "n" is chosen from g, a, t and c

<400> 21
tggcannntg cca   13

<210> 22

<211> 29

<212> DNA

<213> Homo sapiens

<400> 22
gagccgggcg cccaagccta aacgggcga   29

<210> 23

<211> 29

<212> DNA

<213> Homo sapiens

<400> 23
tccctcccgc ccaagcctcc cggcctctg   29

<210> 24

<211> 28

<212> DNA

<213> Homo sapiens

<400> 24
gtagttcgca tcctcagcag aaagcacg   28

<210> 25

<211> 26

<212> DNA

<213> Homo sapiens

<400> 25
actcagcaga aagccgtgag gagccg   26

<210> 26

<211> 23

<212> DNA

<213> Homo sapiens

<400> 26
gaaaggagcc ggggcccgcc cca   23

<210> 27

<211> 33

<212> DNA

<213> Homo sapiens

<400> 27
tgcaccgagc gcagtagtta ctatcacaca aag   33

<210> 28

<211> 22

<212> DNA

<213> Homo sapiens

<400> 28
gagaagcttc ggctcggctc tg   22